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# THE RADIATOR



W6RHC  
IRLP #8170



[www.gearsw6rhc.org](http://www.gearsw6rhc.org)

P.O.Box 202 Chico, CA 95927

June 2022 Newsletter

GEARS Founded August 13, 1939

## From the President.....

June and it's warm weather brings many fun and exciting activities to our family. School being out means a whole bunch of bicycling, camping with friends, lots of dirt and play and many family birthdays bringing cake and ice cream. June is a great month!

For HAM'S June brings FIELD DAY. GEARS is planning FIELD DAY at the Masonic Family Center at 1110 W East Ave this year. Get your portable equipment ready. More details to come, but set aside the weekend of June 25th for FIELD DAY.

The auction we so looked forward to came and went and was a big success. There was a lot of good high-end gear, some old stuff and some...other. There was something for everybody. All the anticipation was well worth it, the club raised good money and buyers got some great bargains.

There seemed to always be the necessary amount of help. Thank you to everyone helping with the preparation, the execution and the cleanup. Special thanks to Tom, W6JS for storing the materials for so much longer than expected, THANK YOU TOM.

Remember BREAKFAST on June 11th at Farmer's Skillet on Cohasset, our monthly meeting on June 17th at the Dive Shop on Hwy 32 and FIELD day on June 25th at the Masonic Family Center on W East Ave.

Enjoy your June, I hope June is as special a month for you as it is for me

'73

Paul Stewart N6PAS  
[n6pas1@gmail.com](mailto:n6pas1@gmail.com)



Join GEARS on Facebook  
[www.facebook.com](https://www.facebook.com) For timely news and additional information.

## June 2022 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2 7:30pm Simplex Net	3	4
5 2pm VEC Testin 8pm OARS Net	6 7pm GARS Net 8pm ARES Net	7 7pm PARS Net 7:30pm GEARS Net	8	9 7:30pm Simplex Net	10 7pm OARS meeting 7pm GARS meeting	11 9am Chico Breakfast
12 8pm OARS Net	13 7pm GARS Net 8pm ARES Net	14 7pm PARS Net 7:30pm GEARS Net	15	16 7:30pm Simplex Net	17 6pm GEARS Meeting	18
19 8pm OARS Net	20 7pm GARS Net 8pm ARES Net	21 7pm PARS Net 7:30pm GEARS Net	22	23 7:30pm Simplex Net	24	25 <b>FIELD DAY</b> 9am OARS Breakfast
26 <b>FIELD DAY</b> 8pm OARS Net	27 7pm GARS Net 8pm ARES Net	28 7pm PARS Net 7:30pm GEARS Net	29	30 7:30pm Simplex Net		

**VEC Testing**, FCC License Exam available by appointment. For information or registration call Tom Rider, W6JS 530-514-9211

**Chico Breakfast** 2nd Saturday 9am Farmers Skillet Cohasset Rd, Chico

**GEARS** Board Meeting 1st Monday 7pm by zoom.

**PARS Meeting** 2nd Thursday 6:30pm, doors open 6pm Old Magalia Community Resource Center

**OARS Meeting** Second Friday of the month, St. Pauls Episcopal Church Hall, Oroville.

**GARS Meeting** Second Friday of the month, Lutheran Church Hall, Artois.

**Butte ARES Meeting** 3rd Tuesday, TBD Contact Dale Anderson, KK6EVX 826-3461 for more information.

**GEARS Meeting**, Doors open 6pm, meeting 7pm at Scuba Hut 2725 Highway-32, Chico, CA 95973

**OARS Breakfast** 4th Saturday of the month, at Cornucopia of Oroville.

### NETS:

OARS Club Net Sunday 8pm 146.655 Mhz - PL 136.5

GARS Club Net Monday, 7:00 pm 147.105 MHz + PL 110.09, secondary: 146.850 MHz-PL 110.9

Butte ARES Net Mondays 8pm 145.290 MHz - PL 110.9

Yuba Sutter Club Net Monday 7pm 146.085 MHz + PL 127.3

GEARS Club Net Tuesdays 7:30 PM 146.850 MHz - PL 110.9

PARS Club Net Tuesday 7pm 145.290 - PL 110.9

Simplex Net Thursday 7:30 p.m. 146.52 no tone

Yuba Sutter ARES Net Thursdays 7pm 146.085 MHz + PL 127.3

Sacramento Valley Traffic Net Nightly 9:00 PM 146.850 MHz - PL 110.9

### GEARS Century Members

Dale Anderson, Kathy & Michael Favor

Kent Hastings, Bennett Laskey, Jim Van Sickle

*We thank these members for their extra support.*



## GEARS Field Day June 25-26

Masonic Lodge Back Picnic Area

1110 W East Ave, Chico, CA 95926

### GEARS Repeaters

GEARS West on St. John

145.410 MHz PL is 123.0 Negative offset.  
PL both input and output (CTSS)

GEARS East in Forrest Ranch

146.850 MHz Negative offset. PL 110.9 CTSS  
440.650 MHz Plus offset, PL 110.9 Hz

### CERT

A Community Emergency Response Team -- or CERT -- recently held an emergency exercise in Pleasant Hill, California that responded to a simulated earthquake. Of all the trained CERT volunteers in the city, only a fraction had their amateur radio license. Most CERT members had Family Radio Service (FRS) radios and a few had General Mobile Radio Service (GMRS) radios. The first challenge was facilitating communications among the three-person search teams in the field (neighborhoods) and with their respective Incident Commanders (IC). The second challenge was enabling communications between the ICs and the Emergency Operations Center located at the police department. That was solved by using a two meter VHF Amateur repeater to relay messages. Although the emergency exercise went fairly well, a number of lessons were learned.

Among them:

- More training on message composition is needed, with the goal of keeping messages short and concise, and using phonetics when necessary.
- Message prioritization: More training is needed on what information needs to be communicated and to whom.
- More training is needed on how to make ham handhelds more effective. The typical "rubber duck" antenna can be easily upgraded to boost effectiveness, by using a longer antenna, a portable J-pole antenna, a mag-mount antenna with a 1/4 or 5/8 wavelength whip, etc.
- The FRS/GMRS radios experienced some interference from other conversations that were not part of the exercise. Protocols to respond to this issue need to be developed, such as having radio operators move to a secondary channel.
- A study needs to determine how to effectively recruit more CERT members into the ham community and capture their interest in emergency communications.
- The message form needs to be upgraded to make it more intuitive, with as many check-the-box options as possible for efficiency and standardization.



CERT member James Lowe, KN6IKD, takes down a message during the Pleasant Hills, California earthquake drill.

These lessons are likely applicable to almost any Amateur Radio emergency communications plan.

## Sky High: Mohawk Valley Hams Help Students Track Their Weather Balloons

By Andrew Pugliese, The Leader-Herald

Once a weather balloon is launched – payload attached – Gloversville Middle School, Gloversville, NY science teacher Chris Murphy is behind the wheel, ready to drive to wherever the landing site might be. In the backseat are students following the airship on computers and punching in data that helps determine his directions.

The advisor for the school district's High Altitude Achievement club has been going on these adventures with students since 2013, and ham radio operators along the route and someone at a home base help direct, too. The experience varies from a car caravan to a single vehicle, and from students on a second or third launch to their very first. The seventeenth, and most recent launch, on March 17 was, however, a first. It was the beginning of a launching era including eighth graders in the experience.



An image taken by the camera attached to the weather balloon sent up on March 17 by the Gloversville Enlarged School District's High Altitude Achievement Club.

"I was pulling a lot of juniors and seniors and the next year they're gone. And so I lost all of my experience," Murphy said. "So I started bringing them in younger, from ninth grade. And I started thinking to myself, 'You know what, I can bring in an eighth grader, an eighth grader can do it, they can do it, they can learn quickly.'" Anna Pettit and Blaze Conye-Gillen were the two 13 year olds at the lift off in Blodgett Mills in Cortland County, and then Murphy's co-pilots. Normally, Murphy said, a balloon can reach over 100,000 feet at its apex and the group tries to target Canajoharie as the landing spot for the balloon. From wherever they let go, they usually have time to go grab a meal, get back in the car and get to the site by the time of touchdown. On the 17th, the balloon burst at 87,000 feet and Pettit and Coyne-Gillen had to begin calculating its descent rate while still on the move. Their teacher said it was probably wind, or maybe the balloon was overfilled, but really it could have been a bunch of different things. However it happened, they were not headed for a place as close to home anymore, it would be Cherry Valley, and the journey was about to become even more exciting.

"That's my rush is listening to them. Hearing them in the car, you know, with doing the data, because that's what it's all about," Murphy said. "They're actually functionally doing things that they probably would have never done in class. And they're doing it on the road with a phone. "And it's every two minutes, we get a ping. And so they are my eyes and ears because I cannot when I'm driving, I need to pay attention to the road. Because I do have two 13 year olds in the car." Prior to launch day, the older students help Murphy with work related to piecing together the payload. The most recent one included QR code cards sent to Teachers in Space, a nonprofit focused on stimulating student interest in STEM learning by providing teachers with space experiments and industry connections, from students at different schools in New York – scanned at launch and recovery – and a prototype of the Serenity satellite to be put into orbit by FireFly Aerospace, which contained a 30-sensor microcomputer and two cameras.

Throughout the years of the club, it has been a jumping off point for Gloversville students to recognize passions for science, technology, engineering and mathematics careers. Murphy can easily reflect and think of former students chasing those dreams, including 2016 graduate Austin Reese, now working on his master's at Cornell. Reese took a Teachers in Space trip to Nevada with Murphy, director of High Altitude Balloon Operations for the organization, during the spring of his senior year. While there, the then-18 year old stunned a retired NASA engineer, according to Murphy, by quickly helping to design a piece that still to this day flies in the Perlan glider. The proud teacher sees no reason why current students can't reach the same heights as alumni, especially as new opportunities arise. In December, the club launched a satellite on a Firefly rocket called

Alpha. That launch, like so many firsts, did not make it into space. But, the Gloversville crew and its satellite have their spot reserved already on Alpha Two, and the QR code cards from the balloon launch will make the trip, too.

"As they move up through the years, they'll see how close we are in Gloversville to being, you know, on rockets," Murphy said, referencing his younger students. "I mean, no offense, our experiment [is] going on a rocket – granted an old one, but that doesn't mean that these two can't come up with something that is going to ride on the next rocket." Pettit joined the club in September and, for her, there's just something about building the satellite, which was her responsibility on launch day, that she finds more interesting. "It's super cool...to think like that, we could do stuff like that," Pettit said. "It's cooler than, like, sitting at home and playing a video game. Like it's more fun to get out and do stuff like this than to just sit at home." And two weeks before the launch, Coyne-Gillen might very well have planned to be sitting at his house that Thursday because wasn't part of the team until just days before the trip. According to Murphy, who is Coyne-Gillen's earth science teacher, the eighth graders had a build up of positive behavior points the school gives out to students. At the time, Murphy was offering a chance to just go along for the launch for a certain number of those points, and he asked Coyne-Gillen who said he was saving his points up. Well, the teacher followed up and asked why not just join the club, and the boy said he could do that. Murphy ended up needing Coyne-Gillen to go, the student stepped up, and found that he really enjoyed holding and setting up the balloon at his first launch. He's motivated now to do more. One day he said, "I want to tie [off] the balloon!"

The 21-year veteran of the teaching profession has nine in the club these days, and each year some are not even working on the science. Some are in charge of photography or social media. There is a role for everyone. They build bonds and they build confidence in themselves. This is what it's all about according to him. He wants to get students involved.

## 5 Myths About Ham Radio

By Sean Kutzko, KX9X

Whenever somebody finds out that I'm a ham radio operator, I'm peppered with a lot of questions. These are the same questions lots of other hams get, and they often fall into one of two camps: "What's ham radio?" or "Do people still do that?" These statements are borne out of curiosity and simply not knowing. In some cases, these misconceptions can lead those on the fence of trying ham radio away from our ranks. We can educate them.



For those who have been in ham radio awhile, it's a good exercise to look back at the obstacles of getting into the hobby when we first got started. Here are five myths about ham radio in 2022:

### Ham Radio is Dying

It's not so much dying as it is evolving. In terms of sheer numbers, ARRL says there are about 780,000 ham radio licenses issued in the U.S., which reflects a very small, but steady, positive trend. While a large number of those hams engage in what could be called "traditional" aspects of the hobby—HF DXing, contesting, Morse code operating, etc.—many hams have embraced newer technologies such as digital communication modes and hybrid projects involving both radio and PCs, microcontrollers or robotics. And many of these newer experiments are being done by entry-level Technician-class licensees, where experimentation on the VHF/UHF/SHF frontier reflects current worldwide interest in that portion of the radio spectrum.

### Ham Radio is Too Expensive

Like with almost every other hobby, ham radio can be as expensive as you want to make it. A good place to start evaluating how much ham radio is going to cost you is defining what you want to do with the hobby. For

example, if your primary interest is to be involved with public service communications in your local area, you may be able to enjoy ham radio with little more than an HT, which can run well under \$100. If you want to pursue HF communications, some of the newer microprocessor radios can cost as little as a few hundred dollars; DIYers with some electronics skills may be able to purchase kits for less than that. And there's always the possibility of buying used gear that's a few years old. It may not have all the latest bells and whistles, but the ham radio marketplace is awash with solid used gear for much less than buying new.

### **Ham Radio Requires a Lot of Space at Home**

Just like the “too expensive” myth above, how much space you need depends on what you want to do with the hobby. There are plenty of options available to get on the air without needing a big tower and giant Yagi. If you’re planning on keeping your activity local, a VHF/UHF vertical can be easily mounted on a push-up mast or roof and take up very little space. VHF/UHF Yagis can be as small as two or three feet long and provide good gain over a vertical. Even a 10 meter Moxon antenna is about 12 feet wide at most, which can fit nicely on a push-up mast alongside your house.

If you want to get on the lower HF frequencies, wire antennas can be electrically shortened to fit in smaller spaces, but they may have decreased performance as a result. There are plenty of designs to purchase or experiment with.

If you have absolutely no space for an external antenna, look into magnetic loops for HF that could be set up outdoors temporarily, or even indoors. Many hams have antennas inside. And if all else fails, you can take your gear outside and participate in one of many portable operating programs like Parks on the Air, Summits on the Air, and U.S. Islands, or activate grid squares via satellite or counties for county hunters. Yes, a big Yagi on a tower will perform very well indeed, but wire antennas or shortened Yagis perform better than no antenna. Don’t let your living situation keep you off the air; there’s ALWAYS a way to operate.

### **Ham Radio is Only for a Limited Demographic**

It’s hard to argue against the fact that ham radio in the U.S. has been mostly comprised of older males for a long time. However, there’s evidence that the demographics are shifting. More 30- and 40-year-olds are getting into the hobby now and introducing their families to ham radio, too. And as more women get involved with engineering and electronics education and careers, they are finding ham radio an enjoyable hobby as well. I’m confident the hobby, much like the rest of society, will continue to become more inclusive.

### **Ham Radio is Not Relevant Anymore**

What does “relevant” mean? Merriam-Webster defines it as:

- a: having significant and demonstrable bearing on the matter at hand
- b: affording evidence tending to prove or disprove the matter at issue or under discussion, as in “relevant testimony”
- c: having social relevance

So, the question then becomes: relevant to what?

If “the matter at hand” is emergency communications, then it could be argued that ham radio’s role has taken a hit in recent years. After Hurricane Katrina, government agencies spent billions of dollars to improve their internet infrastructure to help ensure such a disaster wouldn’t take a large populated area offline. This is on top of technological advancements that occurred in the IT world over the last fifteen years. However, even now, ham radio has a role in emergencies. There may be a highly localized event, such as a gas leak, a search-and-rescue operation, a telephone outage, or other event that requires point-to-point wireless communications during a localized outage, or in an area where there’s no cell service.

If “the matter at hand” is education, then ham radio is exceptionally relevant today. While there are several ways DIYers can pursue electronics or coding, there is no other hobby that engages an interested participant in learning about how radio waves function and how they can be incorporated into a DIY project. Ham radio teaches us about electronics, physics, propagation, weather, geography, and a host of other disciplines; it all

depends on what you want to do with the hobby. In the area of STEM subjects, few other hobbies offer such a solid understanding in the principles of RF as ham radio, offering a significant advantage in some areas of engineering.

Of course, to a segment of the population, ham radio is just fun, much like some in the Maker movement who simply enjoy tinkering, experimenting, and building stuff.

Myths are often born with a shred of truth to them. But the whole truth is often much deeper than first impressions. Field Day is a great way to learn more. Ask questions and get involved. Discover for yourself how healthy ham radio is. Hint: It's healthier than you think.

## FCC Software Glitch Delays Amateur Licenses

Test applicants who recently passed their FCC Amateur Radio exams found processing of their work delayed after the The Commission's new "fee-based" computer system crashed. The ARRL Volunteer Examiner Coordinator (VEC) reported that the FCC Universal Licensing System (ULS) electronic batch filing (EBF) system went down midday Tuesday, April 19, 2022 -- the same day the FCC application fees became effective for amateur radio.

Although existing hams who take tests to upgrade their licenses do not have to pay the new \$35 fee imposed by the FCC, first-time Amateur applicants are required to submit their payments before their licenses will be issued. Under the new plan, they must pay it within ten days after receiving a notification from the FCC by email. Hams who submit a change of address are also exempt from the fee, as are changes to club station trustees. Hams seeking vanity call signs must also now pay the fee.

### GEARS Officers:

President..... Paul Stewart, N6PAS  
Vice-President..... Kent Hastings, WA6ZFY  
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GEARS Dues and Donations can be made online at  
[paypal.me/w6rhc](https://paypal.me/w6rhc)

Or by mail to:  
GEARS  
PO Box 202  
Chico, CA 95927

Your dues and contributions support our local repeaters, ARES, and outreach events to keep amateur radio alive in our area. GEARS also makes donations to support other local repeaters.

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